

General Structures HWG Status Report

to ARAC-TAEIG
March 28, 2001

Amos Hoggard
Structures HWG Chair

ARAC General Structures Harmonization Working Group Status Report to ARAC-TAEIG March 2001

Meetings

The last meeting of the General Structures HWG was February 12-16, 2001 in Savannah GA. The next general meeting will be in Wichita KS. April 23-27, 2001.

Proof of Structure, 25.307

The completed NPRM and AC were submitted to the FAA through TAEIG for legal and economic evaluation on August 7, 1997. A Fast Track Report was submitted at the last meeting and the FAA is continuing to process the NPRM and AC. No further GSHWG action is planned at this point.

High Altitude Flight, 25.365(d)

This tasking was issued October 25, 2000. A detail work plan is to be presented at the March 2001 TAEIG meeting.

Scatter Factor, 25.571

AC 25.571-1B was published February 18, 1997 by the FAA. HWG work is complete for this task.

Fatigue and Damage Tolerance, 25.571

While the draft NPRM and AC were being prepared for submittal for legal and economic evaluation, the FAA published Amendment 25-96 (ref. NPRM 93-9) and an accompanying AC. It should be noted that the HWG considered the contents of NPRM 93-9 and the draft AC in their entirety during harmonization discussions. In addition, the AAWG has been given a significant task that will impact the results of any work by the HWG.

During the June TAEIG Meeting, it was recommended that the HWG Chair meeting with the FAA to discuss how this situation could be resolved. This meeting was held in late June 1999 and ground rules were developed on how this could go forward. This proposal was presented to the HWG in August 1999. The proposal establishes the base for harmonization as Amendment 96 with the task to establish a harmonized work against that document. The work would address the following elements as a minimum

- Harmonize JAR and Amendment 96 FAR
- Reintroduce Fail-safe requirements into the rule language
- Embody the work of the AAWG into the rule and AC language

It was further agreed that the wording of the rule can be changed as long as the change is justified in a way that none of the precepts are lost. The HWG agreed with the proposal and the concept that it needed to work closely with the AAWG to develop the final proposal.

At this point, the HWG is requesting that the Draft NPRM and AC submitted in the June 1999 meeting be withdrawn until the additional work is completed. The GSHWG work continues with a planned completion date of December 2001.

Materials, 25.603

This is a new Tasking under the Fast Track Process. The HWG considered this last year and found that there is no substantive differences between the FAR and JAR in either the rule or AC language. Since that time, there has been a change published to the JAR which embodied NPA25-256D regarding procedures to be

followed when a change in composite material is proposed. Now the rules are not harmonized and the HWG is requesting that an additional tasking be granted to incorporate the NPA into the FAR AC system. The fast track report and a proposed TOR has been submitted to do this. No further GSHWG action is planned pending tasking under the submitted TOR.

Material Strength Properties and Design Values, 25.613

The completed NPRM and AC were approved at the April 9, 1998 TAEIG meeting and forwarded to the FAA for publication. Still at FAA, not published. The FAA has requested a re-review of certain elements of the economic package. The GSHWG is reviewing these elements at the moment.

Casting Factors, 25.621

Draft NPRM and AC were submitted to the TAEIG in the June 2000 meeting for legal and economic evaluation. The FAA returned the document with both editorial and legal corrections. Those changes were reviewed and necessary corrections made. The Fast Track Report was updated and the package, with preliminary legal and economic review has been submitted and approved in September 2000. No further GSHWG action is planned at this time.

Birdstrike, 25.631, 25.775, 25.571

The draft NPRM and AC were submitted July, 1995 through the TAEIG for legal and economic evaluations. The Regulatory Branch and the ACOs have reviewed the drafts. The economic evaluation is in progress. The NPRM preamble material has been rewritten to provide improved justification for the rule change. The new draft has been circulated to HWG members for review and agreement. A new economist has been assigned. Additional cost data has been compiled and transmitted to the economist.

Received memo with rough estimate of the costs stating that it does not appear that the "reduction in safety" associated with this change is justified by the economic benefit. The HWG had made it very clear that it is obvious that the proposal is to lower the requirement but that the result still provides the necessary level of safety. It is very disappointing that the economists have formulated their own position on the required level of safety rather than working from the data and conclusions provided by the HWG after our many hours of deliberation.

Additional information was submitted to TAEIG in hopes of obtaining a resolution to this dilemma. Action was assigned to the FAA and JAA representatives to re-table the issue with the respective agencies. The result of this was that the FAA reaffirmed its position on the 8lb-bird and the JAA has published TGM removing the cut-back speeds. The FAA also acknowledged that they had contracted with the University of Illinois at Urbana-Champaign to study bird populations, and the probability of airplane/bird encounters. As a result, the working group has requested that the tasking remain open while the R&D studies are ongoing to assist the FAA with data and other support. It is hoped that the new data will provide a clear technical basis for future rule making.

Operational Tests, 25.683

This is a new tasking under the Fast Track Process. As such, the regulators provided a proposed fast track report for the HWG consideration. Following some discussion, it was decided that the appropriate path would be to envelope the requirements using the JAR text as recommended in the Fast Track report. Upon further review, the HWG found that additional advisory material was necessary to ensure uniform methods of compliance to the rule. Therefore the Fast Track report was revised to indicate that an additional task was required in the specific area of advisory material and a TOR was prepared for submittal. In the December TAEIG meeting, the

TAEIG decided that an additional tasking on this subject was not required and requested that the GSHWG produce and submit an AC on the subject under the authority of the existing Fast Track Report. The FAA would then review the AC for any additional rule making that was required. The GSHWG is active producing advisory material.

Windshields and Windows, 25.775(d)

It has been agreed that no change to the rule is required. An AC has been prepared and submitted to the ARAC with a fast track report September 2000. The AC subsequently received both a legal and a tech writer review. Changes as a result of these reviews were incorporated into the AC. The GSHWG plans no further activity at this time.

Doors, 25.783

The Doors Sub-team has completed their work and has submitted a complete package with Preliminary legal and economic assessment to the TAEIG at March 2000 meeting. No further GSHWG action is planned at this time

Fuel Tank Access Doors, 25.963(e)

Two alternate proposals for proceeding were submitted to TAEIG at the June meeting. The HWG recommended that Proposal 2 be submitted to the FAA for Legal and Economic Evaluation and the JAA Power Plant Study Group (PPSG) also endorse the proposal. On September 12, 1999, the HWG received word from the PPSG that Proposal 2 was acceptable. A Fast Track report has been prepared for this tasking as requested. Following the Paris accident and the ensuing investigation, the PPSSG and the FAA have proposed an additional tasking for the GSHWG to consider. The GSHWG plans no further activity unless directed by ARAC on this subject.

FUTURE WORK

The GSHWG expects to be tasked for 25.603.

Amos Hoggard
General Structures HWG Chair

General Structures HWG Status Report March 2001

Title	CFR Part 14	*Legal	*Economics	Fast Track Report	Status Since Last Report
Published:					
Scatter Factor	25.571	NR	NR	NR	HWG Work Complete
At FAA for Publication:					
Material Strength Properties and Design Values	25.613	Complete	Complete	NR	HWG Re-reviewing Economics
At FAA for Evaluation:					
Proof of Structure	25.307	Complete	Complete	Complete	HWG Work Complete
Materials	25.603	Complete	Complete	Complete	HWG Work Complete
Casting Factors	25.621	Complete	Complete	Complete	HWG Work Complete
Windshields and Windows	25.775 d	In Work	NR	Complete	HWG Work Complete
Doors	25.783	Complete	Complete	NR	HWG Work Complete
Fuel Tank Access Covers	25.963 e/g	Complete	Complete	Complete	HWG Work Complete**
To Be Submitted to FAA:					
In HWG:					
High Altitude Flight	25.365(d)	Not Started	Not Started	Not started	In Work
Birdstrike	25.631, 25.775 b, 25.571 e	Under review	Under review	NR	Reviewing FAA R&D Study
Fatigue and Damage Tolerance	25.571	In Work	In Work	NR	In Work
Operational Tests	25.683	In Work	NR	Complete	AC In Work

* Preliminary

** Additional considerations possible following recent Paris Accident.

AVIATION RULEMAKING ADVISORY COMMITTEE WORKING GROUP STATUS FORM

Date: 3/28/01

Parent Issue Group **ARAC - Transport Airplane and Engines
Issues Group**

Working Group Name **Structures General Harmonization Working Group**

Task Title **High Altitude Flight, 25.365(d), AC 25-20 Para 8**

Harmonization Number (If Applicable)

Task Description

Review 14 CFR 25.365(d), in particular the factors applied to the maximum relief value setting, which is used to set a limit structural design load (load). Review FAA and Joint Aviation Authority (JAA) advisory material and paragraph 8 of Advisory Circular 25-20. In light of this review, develop a report recommending changes to harmonize this section and the corresponding JAR paragraphs, recommending new harmonization standards, and develop related or revised advisory material as well.

Product: NPRM X AC X Other

SCHEDULE	FORECAST	COMPLETE
TASKING PUBLISHED		October , 2000
WORK PLAN APPROVAL	March 2001	March 2001
TECHNICAL AGREEMENT- REQUEST DRAFTING SUPPORT	October, 2001	
DRAFT OF PRODUCT REVIEW- REQUEST ECON-LEGAL REVIEW	December 2001	
COMPLETION OF ECON-LEGAL REVIEW	May 2002	
RECOMMEND TO ARAC (ISSUE GROUP)	June 2002	
RECOMMEND TO FAA	July 2002	
PUBLISH NOTICE	2 rd Qtr 2003	
PUBLISH FINAL	2 rd Qtr 2004	

Status: **Working Group has developed a list of technical areas where agreement is needed. There is, in addition, a collateral tasking in 25.841 that affects this activity. Some of our work will depend on how that tasking is approached. The Mechanical Controls Working Group Chair has been approached to determine the best way to interface.**

Next Action: **TAEIG Acceptance of approach**

Future Meetings: **Wichita KS, April 2001**

AVIATION RULEMAKING ADVISORY COMMITTEE WORKING GROUP STATUS FORM

Date: 3/28/01

Parent Issue Group **ARAC - Transport Airplane and Engines Issues Group**

Working Group Name **Structures General Harmonization Working Group**

Task Title **Fatigue and Damage Tolerance 25.571**

Harmonization Number (If Applicable)

Task Description: **Develop a harmonized 25.571 rule and advisory material.**

Product: NPRM ☒ AC ☒ Other ☐

SCHEDULE	FORECAST	COMPLETE
WORK PLAN APPROVAL		July 1995
TECHNICAL AGREEMENT- REQUEST DRAFTING SUPPORT		October 1997 Rev. March 1998
Reopening due to Amdt 96 and AAWG	August 1999	August 1999
DRAFT OF PRODUCT REVIEW- REQUEST ECON-LEGAL REVIEW	2 nd Quarter 2001	
COMPLETION OF ECON-LEGAL REVIEW	3 rd Qtr 2001	
RECOMMEND TO ARAC (ISSUE GROUP)	December 2001	
RECOMMEND TO FAA	1 st Qtr 2002	
PUBLISH NOTICE	2 st Qtr 2002	
PUBLISH FINAL	3 rd Qtr 2002	

Status: **HWG Technical Agreement was reached March 1998. FAA published Amendment 25-96 and AC in March 1998. The harmonized preamble has been revised in light of the new rule. HWG has reconsidered the status of it's work and has agreed to reopen the harmonization effort in light of Amdt 96 and the work of the AAWG and FAA/Industries desire to re-instate fail-safe requirements. Estimate of work package to be submitted is:**

- 1. REVISED 25.571**
- 2. REVISED AC 25.571**
- 3. NEW RULE 25.6XX – FAIL-SAFE**
- 4. NEW AC 25.6XX – FAIL-SAFE**
- 5. REVISED 25.1529**

New Estimated completion date – 3rd quarter 2001.

Next Action: **TOGAA review of work product on Fail-Safety, continue to review rule and AC language.**

Future Meetings: **Wichita, April 2001**

AVIATION RULEMAKING ADVISORY COMMITTEE WORKING GROUP STATUS FORM

Date: 3/28/01

Parent Issue Group **ARAC - Transport Airplane and Engines
Issues Group**

Working Group Name **Structures General Harmonization Working Group**

Task Title **Birdstrike Damage**

Harmonization Number (If Applicable) **17**

Task Description

Develop new or revised requirements for the evaluation of transport category airplane structure for in-flight collision with a bird, including the size of the bird and the location of impact on the airplane (FAR 25.571, 25. 631, 25.775, and other conforming changes).

Product: NPRM ☒ AC ☒ Other ☐

SCHEDULE	FORECAST	COMPLETE
WORK PLAN APPROVAL		February 1994
TECHNICAL AGREEMENT- REQUEST DRAFTING SUPPORT		October 1994
DRAFT OF PRODUCT REVIEW- REQUEST ECON-LEGAL REVIEW		July 7, 1995
ASSIST FAA IN COMPLETION OF UIUC R&D PROGRAM	Jan 2002	
REASSESS TECHNICAL POSITION AND SET COURSE OF ACTION	April 2002	
SUBMIT REVISED DOCUMENTS FOR ECON-LEGAL REVIEW	June 2002	
COMPLETION OF ECON-LEGAL REVIEW	Sept 2002	
RECOMMEND TO ARAC (ISSUE GROUP)	December 2002	
RECOMMEND TO FAA	First Qtr 2003	
PUBLISH NOTICE	3 rd Qtr 2003	
PUBLISH FINAL	3 rd Qtr 2004	

Status: **FAA/JAA position on Bird Weight has been published, FAA is currently involved with UIUC in an R&D program to develop bird populations and probability of airplane/bird encounters. Industry has agreed to assist.**

Next Action: **Waiting for results of the FAA sponsored R&D program**

Future Meetings: **As necessary**

<p align="center">AVIATION RULEMAKING ADVISORY COMMITTEE WORKING GROUP STATUS FORM</p>

Date: 3/28/01

Parent Issue Group **ARAC - Transport Airplane and Engines
Issues Group**

Working Group Name **Structures General Harmonization Working Group**

Task Title **Operational Tests, 25.683**

Harmonization Number (If Applicable)

Task Description: **Develop advisory material for enveloped per fast track
report.**

Product: NPRM ☒ AC ☒ Other ☐

SCHEDULE	FORECAST	COMPLETE
WORK PLAN APPROVAL		December 2000
ESTABLISH SPECIALIST SUB-TEAM	April 2001	
TECHNICAL AGREEMENT- REQUEST DRAFTING SUPPORT	October 2001	
DRAFT OF PRODUCT REVIEW- REQUEST LEGAL REVIEW	January 2002	
COMPLETION OF LEGAL REVIEW	2 rd Qtr 2002	
RECOMMEND TO ARAC (ISSUE GROUP)	3 rd Qtr 2002	
RECOMMEND TO FAA	3 rd Qtr 2002	
PUBLISH NOTICE	4 th Qtr 2002	
PUBLISH FINAL	4 th Qtr 2003	

Status: **HWG has determined that a sub group of specialists is required
to establish the advisory material. The HWG will assign the
responsibility to this group of individuals to come up with the
required AC material.**

Next Action: **TAEIG approval of approach**

Future Meetings: **Wichita, April 2001**